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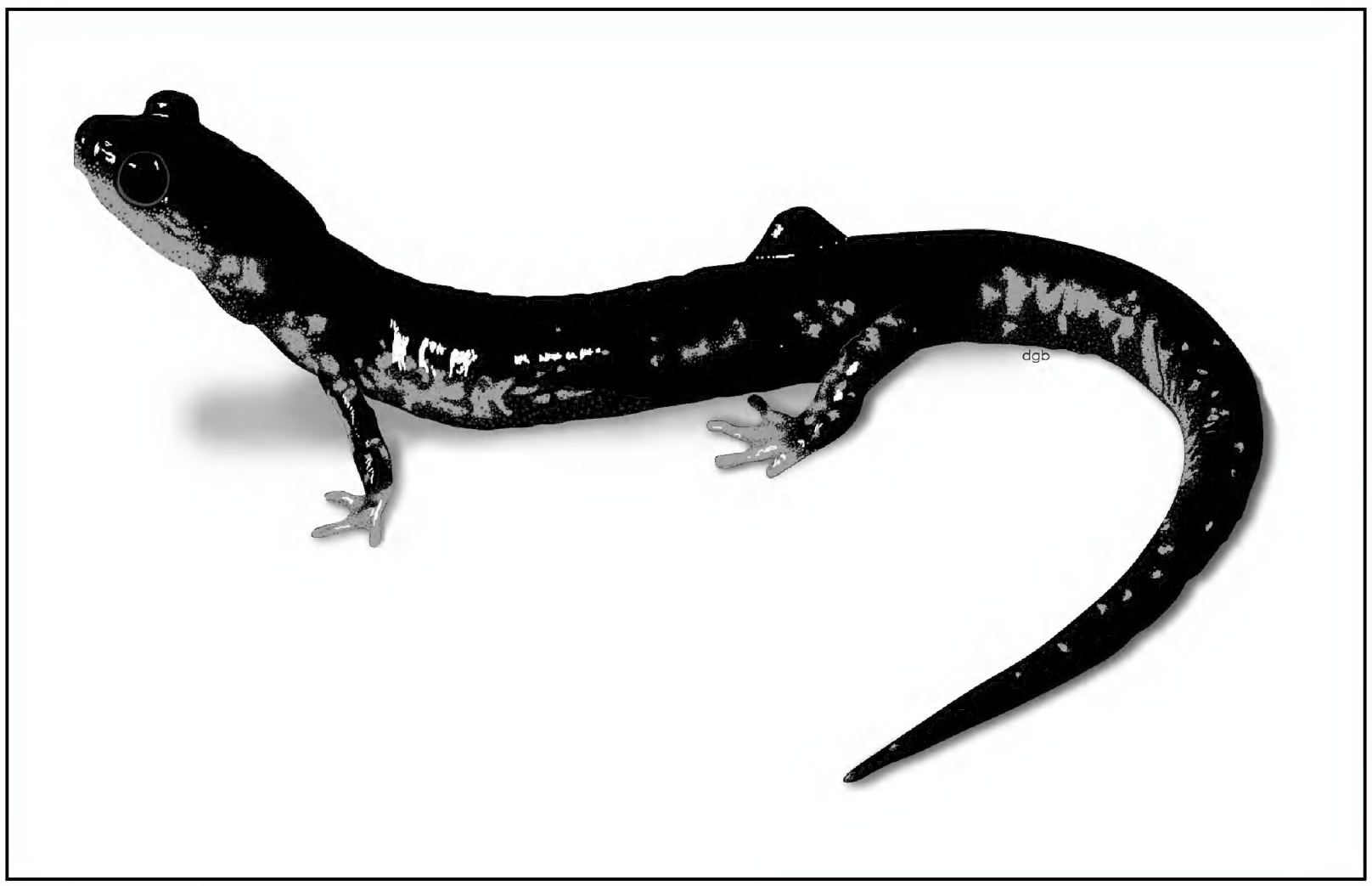

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Observations on the Geographic Distribution of Some Reptiles and Amphibians in Illinois

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The geographic distribution of amphibians and reptiles in Illinois has been reviewed by Phillips et al. (1999). This review spurred efforts to fill apparent holes in the ranges of individual species (e.g., Petzing et al., 2007, and references therein). The purpose of this note is to supply further such data. For various reasons, these observations are not backed up by specimens or photographs, but, until such documentation is acquired, the information provided herein provides at least some evidence of the occurrence of these species in time and space.

Notophthalmus viridescens louisianensis (Cental newt). DuPage County: Wood Dale Grove Forest Preserve (T40N, R11E, S22). 30 June 2005. Small specimen (total length: 3-4 cm) found beneath woody debris in dried pool at edge of western portion of wetland. I have documented this species from this site previously (Cochran, 1988, 1989; Cochran and Redmer, 1992) based on sightings through 1991. After finding a specimen on 21 August 1992, I did not observe any newts during six subsequent summer visits during the period 1993–2002. It was hoped that disturbance in and around the forest preserve (e.g., new home construction, removal of buckthorn, new trail construction) had not caused the extinction of what was probably a small and vulnerable population at the time the preserve was first established. Some of this activity, such as removal of buckthorn and restoration of a more natural mix of habitats, may have potential long term benefits to the newts if their population has indeed persisted through initial disruptions.

Hyla versicolor (Eastern gray treefrog). Menard County: Lincoln's New Salem State Historic Site, picnic area along Sangamon River across State Highway 97 from the historic village. 21 June 2008. A single male heard calling occasionally. Not previously reported from the county (Phillips et al., 1999).

Storeria dekayi (Brown snake). Menard County: Lincoln's New Salem State Historic Site, picnic area along Sangamon River across State Highway 97 from the historic village. 21 June 2008. Large adult found beneath large piece of bark on crest of high shaded bank approximately 70 m downstream from boat landing. Site was high above current water level but had been flooded in recent past. Not previously reported from the county (Phillips et al., 1999) but recently reported from just across the county line in Sangamon County to the south (Petzing et al., 2002).

Acknowledgements

Observation of the newt occurred during a trip to Chicago to speak at a meeting of the Chicago Herpetological Society. Observations in Menard County occurred during a family reunion hosted by Cynthia Cochran.

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This article originates Down Under, but from a U.S. perspective it is "over the top" in regard to do-it-yourself venomoid surgery and free-handling venomous snakes. The author has inserted his own warnings at the end of the article. To them should be added that the Chicago Herpetological Society does not encourage the keeping of venomous reptiles, and most emphatically does not encourage free-handling them. However, the CHS does sponsor live reptile shows for the purpose of public education, and Mr. Hoser has some interesting things to say about the use of reptiles in such shows.

Show-stoppers: The Life and Times of Reptiles That Work for a Living

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Abstract

This article deals with reptiles that are used for live reptile shows, exhibitions and lectures and how they cope with the changed conditions and lifestyle. It also deals with various related issues from the perspective of the keeper.

Introduction

At end 2003 I acquired a permit to do live reptile shows in Australia. Like most herpetological activities, it seemed easy at the start, but soon became more complicated. The idea began as a result of friends getting out of the reptile display business and some telling me that I should fill their shoes. It all made sense and at first seemed really easy. A few live reptiles and the rest should be like ABC! That's what I thought anyway. But, it wasn't quite like that.

First I did my sums. I needed one of each of the local deadly snakes, as the deadly snake shows are what everyone wanted. Namely (red-bellied) black (*Pseudechis porphyriacus*), (eastern) brown (*Pseudonaja textilis*), tiger (*Notechis scutatus*) and copperhead (*Austrelaps superbus*). Another snake I should have, the death adder (*Acanthophis antarcticus*) I already had, so at least I didn't need to acquire any of them.

I also needed a few of the harmless pythons and a few lizards. From a cost point of view I was lucky. All I could get from friends for next to nothing, except for the pythons that actually cost money. Fortunately I had a diamond and carpet (*Morelia* spp.) already and so I thought I was OK for these snakes.

I then got told I needed to "rotate" snakes. After all what happens if one is off color, just fed or something? Yes, two of each made sense and so I upped the number to two of everything.

Then came the tiger snakes. They are king of Melbourne (where I live) and vary in color and so I grudgingly decided I needed four. Fortunately the people who have tiger snakes can't give them away and so two rapidly turned to four and before I knew it I soon had ten in the house. I would have got more, but the limit for adults of each taxon under my permit was ten.

Numbers of the other taxa went up as well. Why so many? Well besides the need to "rotate" snakes—actually that wasn't a major issue after all—was the more pressing need to have an impressive show . . . more on this shortly.

Handling one deadly snake is half impressive. Ten at once is what the public really wants! Believe me, if you want to see jaws drop, just see what happens when you grab a fistful of deadlies and have them draped all over your arm.

Lizards? Well that was another unforeseen headache. At first I thought a few would get me through. Forget it! If you do a "hands-on" talk for a class of thirty kids, they all want to hold a bluetongue lizard (*Tiliqua scincoides*) and "now." One soon turned to five. Plus two blotched bluetongues (*T. nigrolutea*), shinglebacks (*Trachydosaurus rugosus*) and Cunningham's skinks (*Egernia cunninghami*). . . .

Lizards are far more labor intensive than snakes. Not only can't you get away with feeding them only every week or two, but they make a mess of their cages as well. More cleaning! I steered clear of the bearded dragons as they needed insects and sunlight and that to me simply read "work." Instead I kept to the big, slow-moving skinks, all of which can thrive in a large plastic tub . . . just like the snakes. In other words, for cages, one size fitted all! Three racks gave me enough cage space for everything, with space left over!

The First Hurdle

After running around Australia gathering up everyone else's unwanted reptiles, I had what appeared to be a suitable collection. Included in this motley collection were "poor doing" captives, wild-caught disease bags and even a trio of red-bellied black snakes carrying what's now become known as "Weigel's curse." That's the reovirus that's decimated a number of private collections in Australia since 2002.

In short, for me this meant a load of extra work in the form of drug treatments to clean out and otherwise fix subperfect reptiles. More work to feed them and get them into shape for shows. After all I only wanted the best snakes and lizards to go on show. For most reptiles, it was some months to get them looking the part.

Free-handling Venomous Snakes

Then there was the show I intended doing. Here in Australia, the typical reptile show starts with the venomous snakes and

ends with the harmless ones, and perhaps a few lizards as well. Venomous snakes always get featured because they are so common here and are a real risk for many people. People have a morbid fascination with things that can kill them.

This also explains the over-emphasis by the media in terms of terrorism, even though the average person is about 1,000 times more likely to be killed by a car or 1,000,000 times more likely to die from cancer.

Most reptile shows here in Australia have the handler bring out one snake at a time. They tell the audience that the snake is deadly and they are "tough" because they can actually handle the snake and then they put it back in the bag, before another snake is pulled from another bag. Eventually the series of species is done and the snake man gets a round of applause. Sure it entertains, but there was one snake handler here who did far better than that.

This was Fred Rossignolli. He simply brought out a whole swag of deadly snakes (several of each species) and he free handled the lot (usually at once) and literally wowed the audience. Not only that, but the audience got a far better show because they could actually see the different kinds lined up togeather for direct comparison.

Now Fred never big-noted himself or said he was good because he free-handled his snakes. Quite the contrary, he made it clear he got bitten all the time and that was the price he paid for sloppy handling. As it happens, with a couple of exceptions, most of his bites came at home when handling snakes after handling rodents. Put bluntly, Fred's shows were best and nothing else came close.

Now if I wanted to do a show that was even half as good as his, I had to emulate his free-handling. I also needed to have several of the important species to show at once! Hence my upping the number of reptiles I needed to have.

Now for those who don't know, there is no great skill in free-handling a venomous snake. The snakes themselves either don't know they are venomous or don't care. In fact they handle much the same way as non-venomous snakes. The only difference is that if a non-venomous snake bites you, you wipe off the teeth and say "sorry." But if a venomous snake bites you, you may get sick or die. Fred took that risk daily and frankly I lacked the intestinal fortitude to make a habit of free handling my most dangerous snakes (especially the eastern browns).

To cut a long story short, I pioneered successful venomoid surgery in Australia (see Hoser, 2004, or Hoser, 2005), the result being all the venomous snakes I used for my shows had their venom glands removed. My regular critics called it the coward's way out of the problem, but for me it made good sense.

Hence I was able to free-handle snakes without risk of death from bite (yes they could still bite) and I was able to do a show as good as (or even better) than Fred's.

Why better? Well Fred still had to keep some snakes away from others because they had a habit of biting and killing one another (different species aren't usually immune to other species venoms) and at all times he had to be mindful of the risk when handling different species in proximity. For me, that risk evaporated.

In fact I could even pull a diamond python out of the same box as a tiger snake or copperhead! That tended to spook out the herpers in the crowd! But that did add to my angst when I started. The time taken to neuter 20 odd snakes is quite substantial. In fact it took many days! Then of course there was the follow-up.

At first there was a lot of "wait and see." As it happens all the snakes came good and without incident, but there was some anxiety as I used freshly neutered snakes within days of being operated on and with sutures still in their mouths.

It turned out, no one ever knew the difference. But let me share something with you. Doing a show with about 20 venomoid snakes, the climax being to hold all or most at once, and without fear of being bitten and killed really does take the stress out of the whole affair.

The audience generally isn't told that the snakes are harmless, but the people paying for the show usually are. This way, the work safety officials can take a deep breath and not have heart attacks as they wait for me to get chomped and carted off to hospital.

As to why the audience weren't told that the snakes had been "fixed" well that was simple. They didn't ask. If I was asked during a show, I'd say "yes" and leave it at that. But the problem with otherwise telling the audience that the snakes were "fixed" was because this would lead people to think that the snakes weren't biting me because they were "fixed," when in fact that had nothing to do with it. You see the snakes didn't have the brain power to realize they were venomous or now non-venomous in the first place and/or the ramifications of their venomous or non-venomous state if they did know.

The exception to the above was for shows aimed at young children, in which case they were told the snakes had been "devenomed."

The real benefit of the venomoiding wasn't however the human safety. In fact it was the snakes who benefited from a lifetime without being tailed, necked, pinned or hooked. Even the most "ferocious" of species (browns and taipans) soon became as placid as a pussy cat when they realized that they'd always be free-handled with care and dignity!

Doing the Shows

Doing the snake and reptile shows was easy. When you've been in the reptile game as long as me, it's as simple as pull the reptile out of the box and start yapping. That part's as easy as falling off a log. How many herpers do you know that can't talk herp?

The harder part was dealing with things like the weather and the legal requirements. Locking box to transport the critters (I needed more than one) and signs, labels and the like. More reptiles meant more bags and boxes. Then there were signs, mobile clocks, a pit, rope barriers, backdrop signage and before

you knew it, lots of things needed in a hurry. To make myself known I had to advertise, build websites, print fliers and all this before a single show!

My first "show" was on an oppressively hot day and so I spent the entire time hiding from the sun and keeping the reptiles on ice. They coped better than me. I was badly sunburnt. I needed to add sunscreen to my snakeshow kit!

My second show was a dream run in that it was cloudy and I was indoors as well. The third show was on a day forecast to be cool that turned out to be hot and again I had to play cat and mouse with the sun. The fourth and fifth shows were on a very hot day and using ice-sheets in the snake boxes I kept them cool as cucumbers all day. In fact, it was amazing as in 31-degree Celsius heat at the Sandringham Bayside Festival I was able to place a collection of deadly elapids on a table and all of them, including a formerly crazy eastern brown snake (aren't they all?) sat still until I grabbed them all as a bundle and put them into a plastic box. Remember they were all venomoid!

Handling the Reptiles

Does handling stress the snakes and lizards? Yes and no. In terms of the reptiles I handle, the answer is effectively no. As an experienced reptile handler and handling non-dangerous reptiles (including venomoid), the reptiles are never unduly restrained or roughly handled. Pinning sticks weren't necessary in my shows! Reptiles are handled so often for shows and the like, that they have no fear or stress being handled and hence become perfectly adjusted to doing shows, being transported and the like.

If anything stresses them at all, it is when I (deliberately) pack them among one another. Reptiles prefer to be on their own and this part of the trip (being together) stresses them out far more than my handling them. This is perhaps best noticed when I pick up a snake and put it down again. Assuming I pick it up alone, the snake has no stress or fear when handled. However as I put it down, if it sees another snake or is close to it, it will arc up and move into a fear posture. Similar applies for lizards.

In terms of the "innocuous" reptiles that I allow other people to handle, well they do cop quite a hiding! They get dropped, thumped and generally mishandled by people. Included here are the adults with irrational fears who will drop a lizard they are holding the moment it actually moves! Included are the two-year-olds you may have to stop from trying to eat the reptile.

Generally I use slow-moving placid species like shinglebacks, bluetongues and the like and by and large they all take it in their stride.

The only thing I've found I've had to watch for is in terms of the heavy reptiles. When dropped they hurt themselves (yes they bleed) and so I will tend not to allow them to be handled at times this is likely or possible. On the other hand something like a half-grown bluetongue has so little body weight that even if dropped it doesn't get enough velocity to hurt itself.

Now in terms of shinglebacks hurting themselves, I am talking about falling on their head and bleeding from the mouth. In terms of permanent damage or injury, so far all reptiles have escaped this. This is amazing as crocodiles do not "bounce" as well as the squamates and chelonians are obviously not designed to be dropped onto a hard surface.

At one event a crocodile was trodden on. At another a gravid shingleback was trodden on. Both survived. The shingleback gave birth to two lovely babies that were apparently normal. The significance of that was that a male blotched bluetongue was seen mating her some months earlier. Obviously one of the male shinglebacks got to her first!

As reptiles do more and more shows (mine tend to work on a near daily basis), they lose all fear and evidence of stress and this is regardless of how much handling by members of the public. Obviously one fresh at the job needed to be treated differently to a seasoned performer, but effectively without exception, all ended up fitting into the role of traveling show reptile.

The Next Day

Not only are reptiles not unduly stressed by the constant handling (notwithstanding that which I wrote immediately above), but they in fact take it in their stride. By and large they become increasingly pleasant, easy to handle and tractable. This includes the venomous (and/or venomoid) snakes. That explains why people like Fred Rossignolli can handle the deadlies day in and day out without getting bitten.

However there is one thing I have noticed in terms of the reptiles that go on the shows. The day after a show, or series of them, they have a greater than usual appetite. All the movement and activity is above what they would otherwise get and they literally work up an appetite. Of all things, this is the only really measurable effect of reptiles that go on show.

Long term? Well after six months of three to four shows a week (average), including an average of at least one intensive full-day gig involving continual handling, the score for the reptiles was as follows: No casualties and all in prime health and condition. More on this shortly.

Mites

Then there's mites. These are the scourge of the keepers who do reptile shows and within my first five shows I picked up some mites as well. I knew this was coming and so I was ready for it.

Another reptile exhibitor, Phil Grono, actually sprays his show reptiles (that have been handled by the public) for mites at the end of every show he does. For years Fred didn't and as a result he was always getting them in his collection and fighting them there. Ditto for most other exhibitors.

I was geared to have the Grono protocol for myself, but in the first instance did nothing just to see how long it'd take me to get the mites. After my fifth show I noticed raised scales in some bluetongue lizards and a copperhead. Sure enough a closer inspection revealed mites and I treated my entire collection.

As to where they come from, that's easy. Other reptile

keepers (usually novices) with mite-infested snakes and lizards come along to the shows and handle your reptiles and then give you their mites.

Mites being mites multiply and before you know it, you have an infestation. In fact, mites are probably the most serious hazard facing reptiles that travel for shows.

The Mite Treatment

In my situation it started as follows. At the end of the day's showing of reptiles, all are packed into their boxes. For most these are 30 cm long plastic containers known as "click-clacks." These are shoebox-size containers like those used by snakies worldwide. Then I grab a can of "Top-of-descent" aircraft spray. This is used to spray aircraft cabins to kill insects. I point the spray at the snakes or lizards in their boxes and briefly spray at them (about one second only). The spray vaporizes and by the time I do all boxes in the larger carry box, the whole lot smells of the spray. The large carry box is closed and the reptiles literally stew in the fumes for the hour or so it takes to drive home.

The reptiles are then removed and placed back in their cages. The result to date: No more mite infestations and no reptile casualties or suffering. Before I adopted this routine (in the first few months) I brought in mites several times and had to fight rearguard actions to keep them out of my entire collection. Put another way, for me, prevention was a lot simpler than cure.

The spray is apparently harmful if drunk, but show reptiles are not allowed drink (for up to a day) and the reptiles don't suffer. As the reptiles don't have drink available when sprayed, there is no risk of drinking and ingestion. If spraying cages at home, the water bowls should be removed first, emptied and then placed back in the cage. You see the mites may be on the sides of the container.

As to why I use the spray as a mite treatment/preventative, well that's easy. A load of reptiles can be treated quickly and at once in a way that few if any other treatments can do. Also, due to the airborne nature of the spray, it leaves no fluids or grime. Later on I realized that it was quicker not to spray the boxed reptiles individually, but rather to load all into to the large metallic carrying box which while not airtight is nearly so. The interior of the box is sprayed and then slammed shut. It gave a better treatment and used less spray per session.

Black Dots

The devastating effect of mites is worth relating here. Snakes subjected to venomoid surgery rarely missed a beat in that they continued to act normally even immediately after surgery, including in terms of their feeding, which is of course a good indicator of their state of mind and well-being. (By way of example, the most recent crop of five operated-on snakes all were offered food and ate normally 24 hours after the operation and with sutures in their mouths.)

However when I brought mites into the collection (via the shows), one black dot on a snake seemed to be enough to stop it feeding. I recall once when two tiger snakes and a pair of young carpet snakes knocked back food at a time they were expected to eat. I failed to realize the ramifications of what had happened, putting it down to a normal aberration of behavior. However, the next day when handling one of the tiger snakes I found a single mite on its neck. All snakes were treated for mites and sure enough they all ate the day after! Mites really were the number one show hazard!

Theft

Bob Withey had a black-headed python stolen from an exhibit he had going at the Highpoint Shopping Mall, Melbourne a few years back. The snake wasn't recovered.

Fred Rossignolli's lost a few lizards in his time as well. He is big on "hands-on" as in letting people handle bluetongues and the like and when there's one Fred and 20 lizards out being handled, it's hard to keep an eye on them. Especially if you have pythons out being handled as well! They are more valuable and as a result they are watched closely and the lizards easily overlooked.

My first loss was on my third show. It was at the Red Hill Agricultural Show at Arthur's Seat (Victoria). This was a huge festival with thousands of people and I had ten lizards out being handled by people coming and going at the same time as a couple of pythons. When I recalled the lizards, one (the nicest) was missing.

The kids that stole this lizard also raided other exhibitors at the show. I sincerely doubt that the lizard could have gone to as good a home as the one it left. Or perhaps I'd be better off saying, I don't think its long term health prospects were as good.

Several months later I had a carpet snake stolen, so was forced to rethink my "hands-on" at large outdoor events. I printed a couple of signs with "rules" the central one being that a person had to hand in their driver's license or other "ID" before being given a reptile to handle. Instead of counting snakes and lizards, I merely had to take and hand back licenses and after a year of doing this have yet to lose another reptile. Since then we microchipped all the snakes (venomoids, pythons, the lot!), but that was a result of Government edict, not our personal choice.

While touted as a security device, microchips are nearly as easy to remove as insert and hence not a deterrent to thieves.

Aggressive Snakes

Then there's that other trick Fred had and Fred himself didn't even know about. It's generally known that snakes that are handled a lot calm down. As Fred Rossignolli handled his venomous snakes daily, it made sense that they became tame. That was Fred's line of thinking as well. But that wasn't the full story. A give-away came when I got two tiger snakes and shoved them in the same cage. Newly acquired tiger snakes are always aggressive and usually, but not always tame down over time. However even after quite some time, most will snap at you if even slightly agitated. These two tiger snakes were as tame as could be within days of me getting them.

In another instance, Fred was given an aggressive tiger snake

one day when he was doing a live snake show in a pit full of snakes. Without quarantine or any other checks, he simply dropped it into his pit full of other deadly snakes. The next day, he was free-handling the snake and it was behaving like a long term captive.

Then there's Bob Gleeson in Sydney. He doesn't do snake shows, but he does have lots of deadly snakes and he free-handles the lot. This includes the generally aggressive eastern brown snakes. The common thread with him was that he tended to keep them in groups of about six to a cage.

Maybe throwing snakes in together made them quieter? I put the theory to the test. Here in Australia, eastern brown snakes are regarded as the most highly strung and aggressive of the large elapids. They have a well deserved reputation for not calming down in captivity and wanting to kill their owners long after they've been in captivity.

The two I had fitted this profile to a tee and so I had to somehow overcome this extreme nervousness and aggression in the snakes before I used them for shows. The nicer and marginally less aggressive of the pair went under the knife and was made venomoid. That was the snake shown in Hoser (2004). As of 2007, he's still alive and well (as are all the original venomoids).

The venomoid operation removed the risk of a fatal bite to myself, but as far as the snake was concerned it made no difference. The snake apparently didn't know it was venomous in the first place (or what it meant to be venomous) and to all intents and purposes the snake still wanted to kill me every time I opened its box.

Because I wasn't sure if I'd keep the other brown snake long term, it was initially spared the operating knife and so the venomoid brown snake was thrown in with a large venomoid tiger snake (the large female depicted in Hoser, 2004). That way I wasn't at risk if I opened the box and I had to grab two snakes running in opposite directions. Sure enough the two snakes weren't impressed with one another, but they calmed down in terms of myself.

This process was repeated and on the day of my first show with the brown snake. It shared the same box as a collection of other snakes. By day's end, the snake was calm and could be free-handled. Based on its earlier (and persistent) behavior, I'd not have believed this personality change possible unless I'd witnessed it myself.

The same general process was repeated on an aggressive tiger snake and an (unusually) aggressive copperhead (*Austrelaps superbus*). To cut a long story short, the combination of grouping snakes in close quarters (such as several in a tub when transporting) and frequent handling, will tend to make even the most aggressive reptiles more pleasant and easy to handle.

These two facts explain why snake show people (including me) are usually able to handle normally aggressive snakes in a manner more akin to the way a person would handle a tame harmless species.

Four years later and all the show snakes are so placid, you could even put their heads in your mouth and they'd not care less. Both times I've done this in shows to prove a point (the snakes aren't interested in biting), people have complained, so that's one potential element of a show we decided against using.

The Other Big Hazard

The other big hazard is defecation. Reptiles tend to do this when they are moved and move. A snake sitting in a cage in a corner won't usually defecate. But if it is allowed to move around, it literally moves the poo down its body and the next point is out. While defecation also occurs due to undue stress, this doesn't seem to be the main reason why show reptiles do it. Rather, the movement's to blame. That's especially when they end up moving about for several hours!

In theory you can time the feedings to match defecation and hopefully have it occur away from your shows. Unfortunately that's just a theory. In my situation, I didn't have lots of spare reptiles and I had shows on a weekly basis, often with shows running several days in a row. Thus, it became a game of feeding reptiles when they weren't to be doing shows.

This effectively meant that when there was a scheduled break of a few days or more, then the show reptiles would be fed on the first day, so as to allow time for the food to digest. Noting the variability in digestion times, this meant that some snakes and lizards would defecate during shows and others wouldn't.

Snakes don't tend to defecate too often, but the lizards tend to do it all the time. Bluetongues and shinglebacks are notorious for defecating and when you have up to 20 lizards in boxes on a show day, it's an effective certainty that one or more will defecate.

When reptiles defecate when being handled, that's OK. You simply clean it up there and then. You have moist cloths, tissues or whatever and a sealable bucket to put the waste in. More problematic is when you have six reptiles togeather in a container, one defecates and then the rest crawl or walk through it and get it all over themselves. Next thing you know, you have six poo-covered reptiles.

This sort of thing happens all the time when you group reptiles. Over time you get better at guessing which snakes or lizards are likely to defecate and they get held on their own, but the defecating reptiles remains the greatest headache for the owner of show reptiles.

Spectators often find it amusing to watch me wiping tiger snakes, browns and so on with a wet cloth as they come out of a box and are amazed at how the snakes put up with it and never attempt to bite. The dash to the toilet to wash a load of filthy reptiles between shows is an alternative means to clean a bunch of unruly defecating reptiles. You do it discreetly so as not to alarm others who may be heading in the same direction.

I pushed the envelope one week. Two large tiger snakes were fed one day and carted off to a show the next. One regurgitated its previous day's meal, the other didn't. Obviously I'd gone too far in my expectations on the snakes. But again it was a reason as to why several of each species were required for the

shows. It didn't take long to work out exactly what the limits were for the snakes in terms of ability to hold down food versus handling and after the tiger snake incident, I went another year before I had another regurgitation, the next one being a red-bellied black snake fed four chicken necks the day before the show. This was unexpected as these snakes have a "cast iron" stomach.

The Venomoid Advantage

For the venomoid snakes themselves, the operation is a non-event. One day they are deadly, the next they are not. The first operation done took three hours. In terms of cutting and suturing, the last operations measured just six minutes (3 per side) (or 30 minutes average turnaround per snake). Recovery from surgery is quick and routine and then the snakes can be handled risk free and without a need for pinning, tongs and the like. These snakes suddenly find a new stress-free existence in terms of being handled by their keeper both at my home facility and when on the road doing snake shows.

Which brings me to a new advantage I faced in terms of my live shows. Other people in Australia who do shows have until now been resigned to the fact that their venomous snakes get stressed out doing shows and tend to get sick and die after a relatively short period. Continual pinning, necking and use of tongs does take its toll. Snake tongs, hooks and the like are solely for the benefit of the snake handler, NOT the snake! Don't let anyone tell you otherwise.

But this stress simply didn't happen in terms of my snakes. Why? It appeared that the fact they were being handled by me in the same way as pythons (mid-body support, no head restriction, no pinning, no necking, etc), they responded in the same way. That is they got used to being handled and happily put up with it.

Pythons used for shows, never got stressed and died; the problem for others was confined to the deadlies. Hence, the venomoid snakes, were now being spared the potentially fatal stresses that other snake show people exposed them to. For me, this meant that unlike others who did shows, I wasn't constantly looking for snakes to replace those that were dying prematurely. To the contrary they were mating and breeding as per normal.

Mundane Advantages

Even things as mundane as snakes defecating showed up the venomoid advantage. A Queensland correspondent reported to the local paper another animal welfare advantage of the "Snake-busters" show over an inferior deadly snake show. At the Australian Scout Jamboree, the person had seen me pull a taipan out of a box. The snake had defecated in the box and had some feces on its body. I'd simply pulled out a cloth and wiped the snake clean.

Some months later at another venue in another state, the same thing happened. This time however the handler left the feces on the snake's head. When asked why he didn't clean the snake he retorted "the snake will bite me and I'll die." The comparative welfare of the snakes was stark!

In the circumstances the response may have been reasonable. After all the snake wasn't venomoid. But the welfare of the snake was in this case clearly compromised because of this inherent disadvantage of having venom.

The Seasoned Show Reptiles

Seasoned show reptiles are those which literally take the shows in their stride. They are invariably well-adjusted captives and often eat as soon as they are put back in their cages. Sometimes after several shows, a given reptile may go off its food for a day or so, perhaps in anticipation of being carted off again and not wanting to be caught out with food in its stomach. In these cases food is usually eaten a few days later when offered again.

At first I thought that pre-slough reptiles would be unsuitable to take on shows, but that wasn't to be the case. Other than the fact that they look terrible, they stand up to the rigmarole fine. Occasionally scales are pulled off making the final shed piecemeal, or the dryness and movement may make shedding problematic for some. When that happens a bath in lukewarm water fixes the problem and the skin either flakes off or is manually shed, the net result being the snake sheds perfectly OK and remains in perfect health.

Once I grabbed a large preslough tiger snake as it made off from a table only to pull the rear half of its skin off as the snake sped off. I grabbed the snake and put him in a box, the audience thinking my pulling the skin off was part of the show. As a herper, I thought it looked terrible and irresponsible, but the snake didn't suffer as a result. It shed the rest of his skin that evening and still looked immaculate.

Alternatively, pre-slough reptiles are soaked in lukewarm water for an hour or so after unloading at home and this rehydration generally more than outweighs the dehydrating effects of handling during shows, the result being normal shedding.

Then there's the advantage of Melbourne's cold climate. Because most of the time the weather is cool here, show reptiles tend to sit still. Typically they come out of cool boxes and sit in a bright place and stay still hoping to bask and get warm. The handled lizards like the bluetongues and the pythons also like to be handled as the warm human hands are exactly what the reptiles want and hence they stay still to literally bask on the people. It's not uncommon for a large python to curl up on a person's lap and stay there for hours!

One question I had was how long would it take for a newly acquired reptile to become "show ready." Some literally took to doing shows straightaway. That is they could be handled non-stop for a day, come home, eat straight away and be ready again within a few days. Most lizards fitted this profile either straight-away, or within weeks.

The snakes tended to be a bit slower, but even so, all could be made "show ready" within 12 weeks, in that they were clean, healthy, happy to be handled and could be fed without problem straight after showing, or within a day or so.

In terms of the small or newborn pythons, that sometimes got mishandled by inexperienced people, dropped and so on, I was amazed in that without exception all ate voraciously and were

perfect trouble-free captives in spite of this treatment. I should perhaps note that the mistreatment of these snakes wasn't a daily thing, but rather an occasional occurrence and that by and large their handling was stress free and uneventful.

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————–. 2005. Surgically enhanced venomous snakes. Venom glands out, silicone implants in! The creation of perfect exhibition snakes in the post HIH era. Crocodilian 5(1-3). [including some cover photos]

Warnings

Free-handling of venomous snakes is done solely at the handler's risk. This author and magazine editor and publisher accept no responsibility if a person free handles a reptile (venomous or otherwise) after reading this article. Reptiles alleged to be "fixed" or venomoid, should be treated as potentially dangerous unless properly tested by the handler for venom yield properties immediately prior to handling and found to be negative. Free-handling of non-venomous reptiles also has a bite risk and risk of tooth-borne injury or infection. Having said the preceding "Snakebusters" venomoids are all vet checked and regularly tested. None have ever produced venom, even years after their operations. In the period 2004–2007, over 600,000 people have free handled venomoid jaffas (Collett's snakes) without incident, with all being advised that the snakes in question are rated number 20 in the world's deadliest snakes table (CSL list). The "jaffas" are easily the most popular reptiles at the "Snakebusters" shows, for several reasons, including that people know they couldn't normally handle such snakes in total safety.

Reptiles are potential vectors for diseases such as Salmonella. As a rule hands should be washed properly after handling reptiles. Notwithstanding this generic warning, the Snakebusters reptiles are regularly treated shotgun for common pathogens and regularly checked and tested.

Bull. Chicago Herp. Soc. 43(9):149-150, 2008

Holy Toledo!
(What We Liked Best on the Toledo Zoo Bus Trip)

by Deb Krohn

Holy Toledo—what a day. Fourteen members of the CHS boarded a private bus at the crack of dawn on August 9 and headed to Ohio to visit the Toledo Zoo.

After an easy four-hour ride full of good conversation and Dunkin Donuts we made it to the zoo. As we drove into the parking lot we realized that we had come on a very busy day. There were scads of people everywhere and zoo visitors had to take a shuttle since the parking lots were full. This is when it pays to be a member of the CHS since they were expecting us and our bus driver was able to drop us right off at the entrance. Whoo-wee!

Photograph by Dick Buchholz

On to a look at the Reptile House and all of the herps on display including the rare tuataras. The male was sleeping right next to the glass so we all got a really good look at him. We found out later that he's over 70 years old!

We were wowed by an incredible collection of herps including a giant crocodile monitor, Gila monsters, a wide variety of venomous snakes including the totally cool Aruba Island rattlesnake, and the Virgin Islands boa to name a few.

This male tuatara was pressed up against the glass of the cage. Photograph by Dick Buchholz.

Herpetology curator Andy Odum began our tour with a rundown on the colorful history of the Toledo Zoo Reptile House. Photograph by Dick Buchholz.

Next we got to go behind the scenes for a tour with our guide, Andy Odum, herpetology curator. This behind-the-scenes look was incredible! Not only did we get to see a lot of great herps not on display to the general public we also got loads of fabulous information on Roger Conant and his integral history as Curator of Reptiles at the zoo. For instance, back in the early '30s Conant rigged up a track system over the cages of venomous snakes for feeding and maintenance. Workers could literally hang in the air well above the snakes so the chances of being bitten would be greatly reduced. There was no antivenom available for many of the exotic species in those days! It was really neat to see remnants of this system still attached to the walls.

Tim Herman, a herpetologist for the zoo, then showed us the Kihansi spray toads (*Nectophrynoides asperginis*) and told us their amazing story. These penny-sized frogs were once very prolific in the spray zone of a gigantic waterfall in the Kihansi

Deb Krohn listens intently as keeper Tim Herman relates the sad story of how the Kihansi spray toad became extinct in the wild Photograph by Dick Buchholz.

River Gorge of Tanzania. But once the river was dammed for electricity the spray zone habitat of the Kihansi spray toad dried out. Gazing on these frogs was a real treat since the Toledo Zoo is the only place in the world you can see them on display. We were only allowed to look at them through a window, of course, but we were right up close and got an excellent view of these little marvels.

Tim also showed us a four-toed salamander that he bred in captivity—quite possibly the first person to do so.

We saw so many cool things at the Toledo Zoo that I couldn't possibly list them all, but the following should give you an idea of the wonderful day we had and a few of our favorites.

• John Archer loved the Iranian salamander (*Neurergus microspilotus*).

• Jason Hood and Tlaloc Soria thought the behind-the-scenes juvenile king cobra was cool.

• Dick Buchholz couldn't believe his eyes when he spotted a rattlesnake with over 29 segments in its rattle. Wow!

• Nancy Kloskowski was charmed by a gorgeous Gila monster.

• Elsa Soria thought the behind-the-scenes chameleon set-up was beautiful.

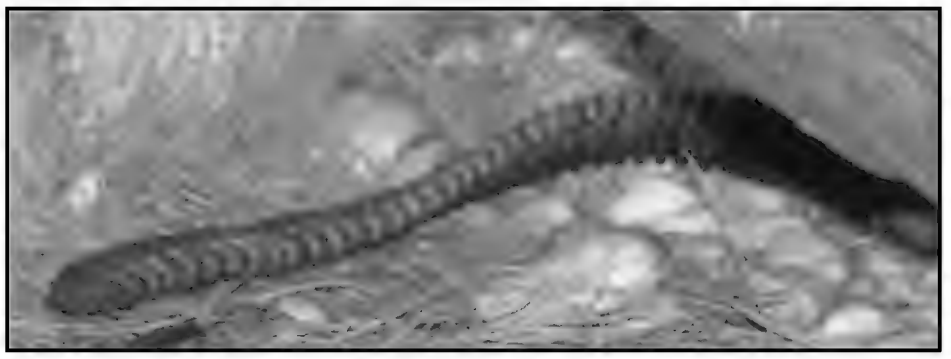
• Mike Dloogatch's favorites were the Kihansi spray toads.

And I can't even begin to pick one thing so I won't try! I loved the tuataras, the Wyoming toads, the Kihansi spray toads, the Japanese giant salamander, the Vietnamese mossy frogs, the captive-bred four-toed salamander, the crocodile monitor. . . . Oh, and the gigantic DQ sundae I scarfed on the way home.

We all extend a sincere thank-you to Andy Odum and Tim Herman of the Toledo Zoo for their time and fascinating information.

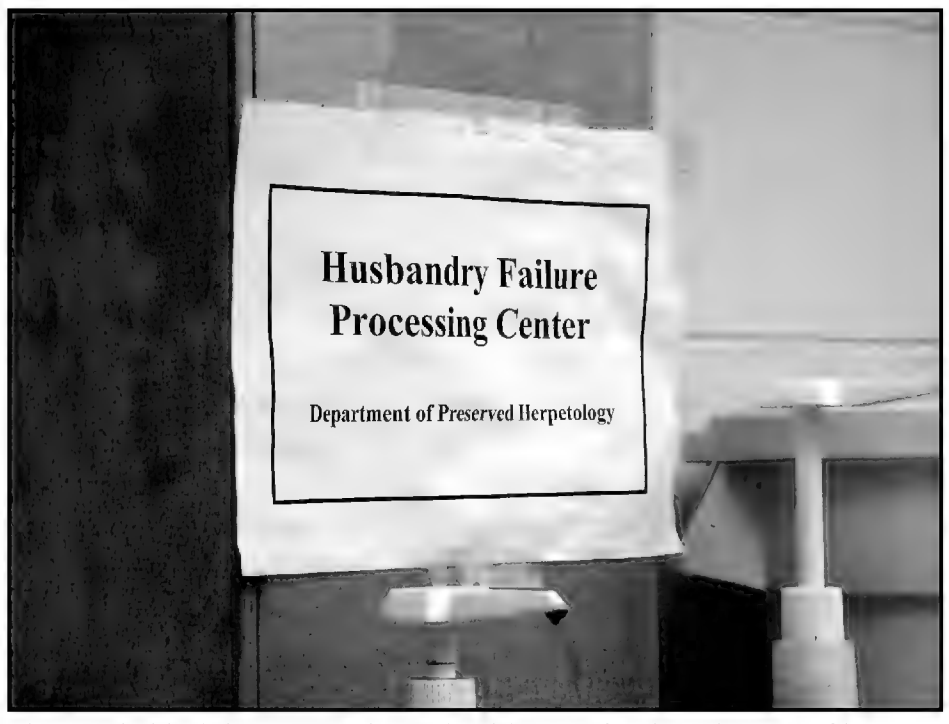
And a big thank-you as well to Jason Hood for putting together such a great field trip!

The Toledo Zoo participates in the Species Survival Plan for the endangered Wyoming toad, *Anaxyrus baxteri*. Photograph by Tlaloc Soria.



It was obvious to all that this impressive string of rattles belongs to a contented, long-term captive. Photograph by Dick Buchholz.

The staff designed and built an inexpensive system of PVC standpipes and valves to make it easy to regulate water levels in the amphibian tanks. Photograph by Dick Buchholz.



Signage behind the scenes showed evidence of a shared sense of humor among the staff. Photograph by Dick Buchholz.

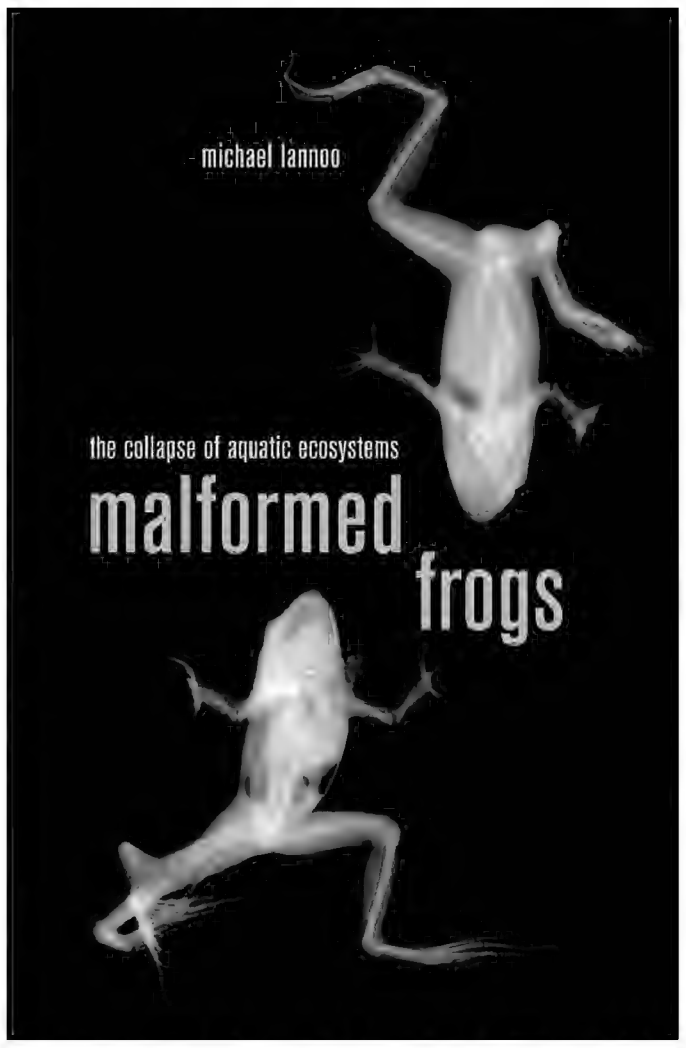
Keeper Tim Herman was justifiably proud of his success in captive-breeding the four-toed salamander, *Hemidactylium scutatum*. Photograph by Dick Buchholz.

Bull. Chicago Herp. Soc. 43(9):151-152, 2008

What You Missed at the August CHS Meeting

John Archer
j-archer@sbcglobal.net

I didn't like Mike Lannoo's talk. But I like Mike a lot. He's affable, approachable, cooperative, and helpful to a degree that I wouldn't expect from a guest speaker, readily helping me set up the projector and computer for his presentation (I'm getting better!). He is a professor who teaches neurology at the Indiana University School of Medicine in Terre Haute, and, as Mike Redmer stated in his introduction, is the guru of declining amphibian topics. Dr. Lannoo has conducted field research in Jamaica and the Antarctic, among others. He's an editor and author. He has a keen sense of humor and an engrossing speaking style. He managed to engage his audience even though we had a wide range of ages and knowledge levels, bringing everyone into some parts of his talk. I wasn't supposed to like his talk.



The cover of Dr. Lannoo's latest book. The subtitle hints that the problem may involve more than just frogs.

During the hour that he talked. Mike provided insight into frog malformations, the scientific process, the politics of science, the incompetence of some government agencies, threats to the environment, and human nature. That's a lot to crowd into one hour, but Dr. Lannoo did it with grace and wit, and finally left me with a feeling of despair that the human race will eventually kill itself off. OK, I'm not that depressed, being a natural optimist, but he did reinforce many of my ideas on the sorry state of the human race's treatment of the environment and what it may be doing to us.

Starting with a picture of Charlie Chaplin and Albert Einstein together at a party in the 1930s, he made the point that simplification can lose information that may be important to your conclusion. If you were to state that they were both geniuses you would be correct, but you would not have conveyed the difference between nor the essence of the two men. Mike went on to give us a brief history of the malformed frog problem, starting with the initial attention in 1995 when Minnesota junior high school students on a field trip led by their teacher Cindy Reinitz, discovered leopard frogs (*Rana* [now *Lithobates*] *pipiens*) with deformities. Within a year this led to the malformed frog phenomena in popular and scientific circles, and research money pored into scientists clamoring for grants. The studies quickly led to heated debates about the cause, and unfortunately, settled into a contest between toxins or parasites, with parasites taking the lead among the scientific community.

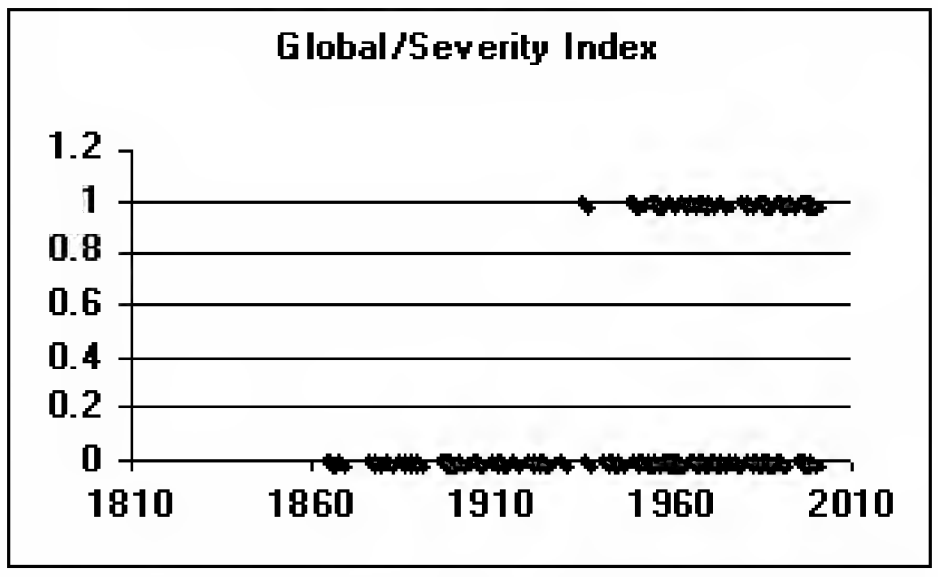
Malformations can arise in any of three ways: genetically, epigenetically, and through trauma. Pictures of blue, wildly patterned, and unspotted leopard frogs gave us an idea of genetic deviations. Mike then showed us x-rays of malformed frogs, and convinced us that not all of those malformations could be caused by trauma, which leaves us with the epigenetic causes. Epigenetic causes are environmental conditions that affect the expression of genes, such as toxins and parasites. By explaining each slide, Dr. Lannoo convinced us that parasites are not the only, and probably not the primary, cause of epigenetic frog deformities. He doesn't even like to limit it to two causes, saying that scientists in Europe have explored multiple causes for the deformed frogs found there. He took us on a photographic tour of some of his study sites in upper Midwest, including a photo of a sign in an Iowa lake that warns against using the water for " . . . spraying, irrigation, livestock or human consumption" posted by the Iowa Department of Natural Resources. Seems that the department regularly poisons some lakes so that they can be stocked with game fish. Pogo was right after all: "We have met the enemy and he is us."

Dr. Michael Lannoo (left) was introduced by Mike Redmer.

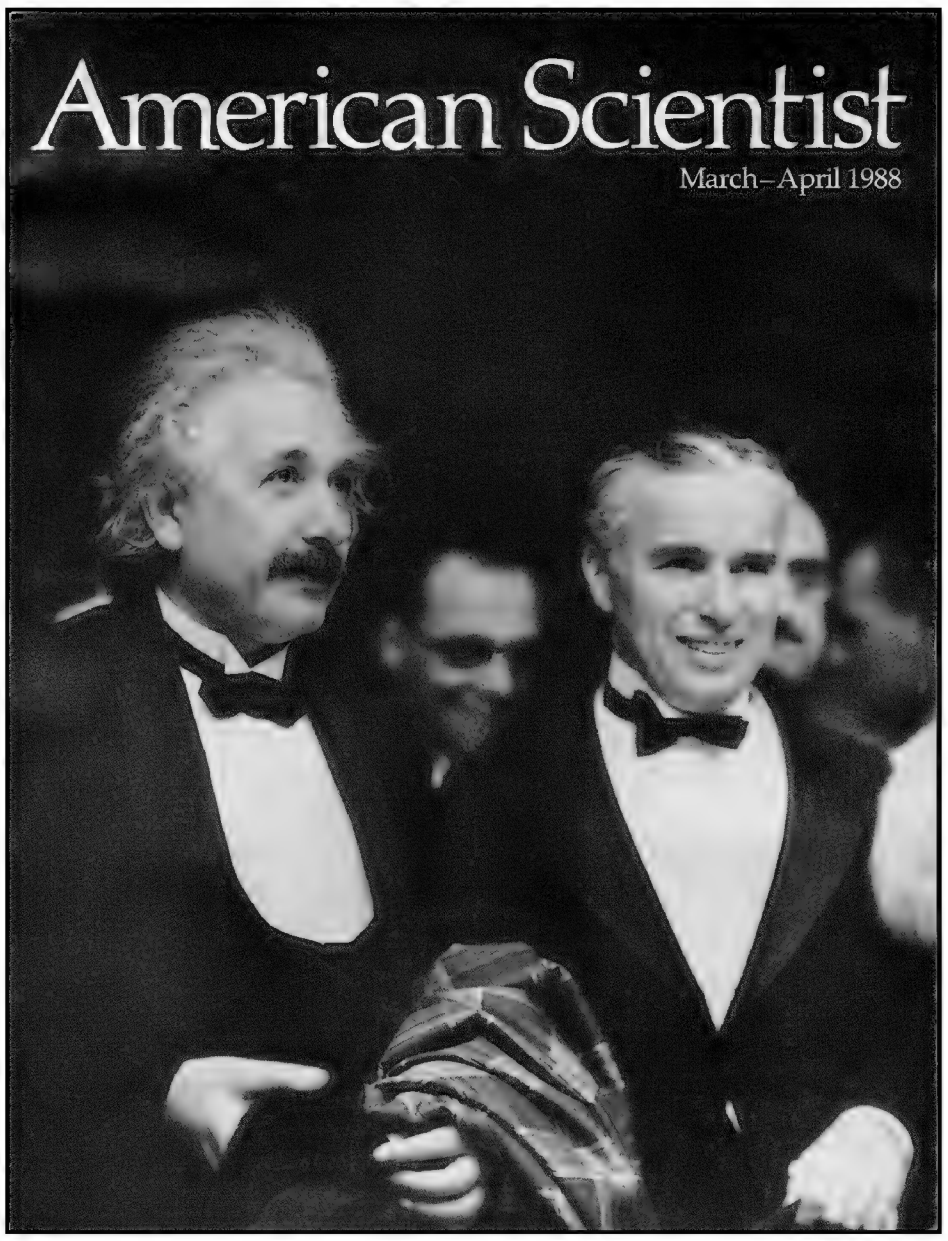
The kandiyohi morph of the northern leopard frog is a genetic variant. Photo by Michael Redmer / www.mikeredmer.com

One of many slides Dr. Lannoo used to build his case for toxins as an epigenetic cause for malformations.

I envy people who can use quotations from many sources (other than the comic pages), and Dr. Lannoo dropped many into his speech, demonstrating a broad range of reading interest and a remarkable memory. Along with the quotes, his slides contained interesting graphs, scenic landscapes, beautiful animals, and funny cartoons. He easily explained complex concepts in language readily accessible to the layman. One graph that he showed is printed with this article. He simply graphed the number of all locations with under ten malformations as zero and all locations with malformations over ten as one. From around 1860 to the present the "zero" line is dotted with points, but the "one" line doesn't start filling in until about 1950. The chilling fact about this graph is that according to a neonatologist attending one of Dr. Lannoo's lectures, a graph of human deformities would look the same. Mike says that it's easier to get people to support the study of frog malformations causes than the causes of human malformations.



Reports of malformed frogs over the past 50 years. Fewer than ten/site are plotted at zero. More than ten/site are plotted at 1.



The slide of Albert Einstein and Charlie Chaplin that opened Dr. Lannoo's presentation.

Dr. Lannoo is a man with a mission. He's actively spreading the word of the potential deadliness of the pollutants that we continue to dump into our environment. At times I think I spotted a bit of frustration that the message isn't getting across to more people. I'm sure that he believes the problem doesn't stop with the frogs. He remembered a quote from John Steinbeck and Ed Ricketts' book, *The Log from the Sea of Cortez*: "Conscious thought seems to have little effect on the direction of our species."

I didn't like Mike Lannoo's talk.

Jeremiah 2:7: "And I brought ye into a plentiful country, to eat the fruit thereof and the goodness thereof; but when ye entered, ye defiled my land, and made mine heritage an abomination."

Yet another apropos quote that Dr. Lannoo inserted near the end of his presentation.

Unofficial Minutes of the CHS Board Meeting, August 8, 2008

The meeting was called to order at 7:45 P.M. at the Schaumburg Public Library. Board members Deb Krohn, Cindy Rampacek and Amy Sullivan were absent.

Officers' Reports

Recording Secretary: Mike Dloogatch read the minutes from the July 18 board meeting, which were accepted as read.

Treasurer: Andy Malawy presented the July financial reports.

Membership Secretary: Mike Dloogatch gave the membership report, very few non-renews from June. Linda Malawy renewed her membership directly at the board meeting.

Corresponding Secretary: Deb Krohn will be getting thank-you cards with the CHS logo imprinted.

Sergeant-at-arms: Dan Bavirsha said that 55 people were at the July meeting, about 40 stayed for the speaker. Dan postulated that some people are only coming for the raffle. Josh Chernoff was ecstatic about this observation.

Committee Reports

Shows: Jenny Vollman reported that the Chicagoland Pet Show will be back to its old Arlington Park venue next year in mid-March. On August 19, Jenny Vollman, Linda Malawy and Mike Dloogatch will be going to the Illinois State Fair to display some of their animals at the Lieutenant Governor's tent. Apologies were extended to the Peggy Notebaert Museum for missing the Saturday show the first weekend in August, but a big thanks goes out to Josh Chernoff, Dick Buchholz and Nancy Kloskowski for covering the Sunday show on short notice.

Raffle: At the last raffle the CHS had a good turnout, thanks in large part to the beautiful painting donated by Don Wheeler.

Adoptions: Linda Malawy reported that a bearded dragon and uromastyx were being surrendered and a woman was donating some of her cages and equipment.

Old Business

Symposium 2009: Jason Hood discussed the current progress for Midwest Herpetological Symposium 2009. We have a tentative hotel contract and the contract has been forwarded to the symposium committee and Rich Crowley for review. The board decided to not have a herps of Illinois display because we would need to get a health department form to satisfy the hotel's requests. The board discussed whether to have vendors at the symposium since it is being held the same weekend as NARBC; the symposium committee will decide this issue.

Zoo Trip: Jason said that there are still 7 places available on the bus for this Sunday's trip to the Toledo Zoo.

CHS business cards: John Archer passed out CHS meeting-invitation cards. ReptileFest cards will be ready before the next board meeting.

Nominating Committee:Mike Dloogatch brought up forming a nominating committee with the historic month of November fast approaching.

New Business

Jason Hood said that a big thanks was due to SEWERfest for donating $615 ($1 per attendee) as well as a free table for the society. Jason said that the all captive bred show was very well run but that more rules were needed to be put in place involving the sale of venomous species. SEWERfest requested that the $615 go to the cryptobranchid fund. The CHS also had $157 in sales at the show. The board thankS Aaron LaForge for providing the booth and the donation.

Andy Malawy reported that last year's insurance premium increased recently due to the increased attendance at ReptileFest this year. Board members asked if we will get a refund from our insurance if the ReptileFest attendance decreases.

A 20-foot-tall balloon was donated from the Peggy Notebaert Nature Museum; it is a cobra head with little fangs. The CHS needs to rent or buy a fan to inflate the balloon, we will first check with PNNM to see if they still have the fan.

Josh Chernoff presented to the board a very important issue that needs to be addressed by the society. Josh did a show in June with Bob Bavirsha where a child was accidently bitten by a young alligator. Josh brought up enacting rules for displaying potentially dangerous animals such as having barriers between animals and people and taping mouths of crocodilians. A lengthy and informative dialogue ensued discussing the merits and suggestions for the display of dangerous animals at our CHS shows. Each board member presented his or her thoughts and ideas at an informal round table discussion. Jenny Vollman proposed to form a committee, the board voted on forming an animal exhibition guidelines committee, all board members present were in favor and the motion to form the new committee passed. The committee will consist of Josh Chernoff, Jenny Vollman, Dan Bavirsha, Dick Buchholz and Jason Hood.

Jason Hood wants to set up a Classifieds section on the CHS forum for members only, he will put rules in place for what can be posted in the Classifieds section. Jason also brought up the idea of having a CHS store on the website.

Round Table

.Matt O'Connor reported that the American Veterinary Medical Association is in the process of developing a Reptile and Amphibian Specialty for interested veterinarians to seek board certification in.

Mike Dloogatch mentioned two recently published books: Mike Lannoo's book on *Malformed Frogs* and a book by Bryan Christy called *The Lizard King*, which is the story of Strictly Reptiles and the family that runs it.

The meeting adjourned at 9:30 P.M.

Respectfully submitted by Matt O'Connor for the recording secretary

Herpetology 2008

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

SEX RATIOS IN ILLINOIS SLIDERS

J. K. Tucker et al. [2008, Chelonian Conservation and Biology 7(1):60-69] examined sex ratios for hatchling and adult red-eared sliders (*Trachemys scripta elegans*) collected in aquatic habitats at Long Lake in west-central Illinois. The authors found that sex ratios were initially balanced but became progressively more male biased with the passage of time. Large cohorts of newly recruited males seem to underlie the increasing male bias. Recruitment more than doubled between 2001 and 2004, and these turtles were strongly male biased. Climatic warming may have led to the current male bias. A period of warming at the site has allowed females to lay more eggs by lengthening the nesting season. Females are laying an extra clutch, which accounts for the increased recruitment. This clutch is laid when soil temperatures are relatively low, explaining the male bias in newly recruited turtles. The impact of the increased number of male turtles on the population is uncertain. However, female condition declined about 7% between 1994 and 2006, suggesting that an effect may be occurring.

BRONZEBACK TAXONOMY

G. Vogel and J. van Rooijen [2008, Herpetozoa 21(1/2):3-29] review the Southeast Asian, Indonesian and Philippine forms of the polytypic painted bronzeback, *Dendrelaphis pictus* (Gmelin, 1789), using multivariate analyses. Several distinct phenetic clusters are discerned. Geographically, these clusters are separated by important biogeographic boundaries, such as the Isthmus of Kra, Wallace's line and Weber's line. The Indochinese and Sundaic populations, although morphologically distinct, are referred to the name *D. pictus* as these populations are assumed to be interdependent lineages. Two clusters are considered to represent distinct species as these population complexes undoubtedly represent separate evolutionary lineages. The first separate cluster comprises the populations from the Philippines and Sulawesi. This population complex is referred to the name *D. marenae*. This species differs from known forms in coloration, in the size ofthe vertebral scales, the number of subcaudals and the tail length. The second separate cluster comprises the Moluccan populations which are referred to the name *D. grismeri*. This species is characterized by the number of ventrals, subcaudals and temporals as well as tail length.

DECLINE OF THREE SPECIES OF AQUATIC FROGS

J. S. Barrionuevo and L. M. Ponssa [2008, Herpetologica 64(1):47-62] report that three species of aquatic frogs of the genus *Telmatobius* (*T. ceiorum*, *T. laticeps* and *T. pisanoi*) were historically present in montane streams of Tucumán Province (Argentina). Exhaustive surveys were conducted between 2001 and 2005 in three types of environments: (1) streams in mountain forests (Yungas) from 1300 to 1900 m above sea level, (2) streams in montane grasslands 2000 to 4000 m, and (3) streams in Prepuna shrublands from 2000 to 3500 m. Small numbers of *T. pisanoi* were found at the edge of its original distribution area, but were absent from the sites where the species was originally abundant. The other two species were absent from the surveyed streams, including historic localities, and are presumably extinct. Several factors are suggested as possible causes of this decline, including (a) an unusual dry and warm period that preceded the last record for *T. laticeps* and *T. pisanoi*, (b) the presence of exotic salmonids in the forest streams where *T. ceiorum* historically lived, (c) the expansion of the trout stockings in the historical distribution area of *T. laticeps*, (d) an increase in erosive processes and debris flowing events in montane streams, and (e) the presence of chytrid fungus.

HATCHLING DESERT TORTOISES

P. C. Baxter et al. [2008, Chelonian Conservation and Biology 7(1):52-59] studied the effects of timing and placement of eggs by gravid desert tortoises, *Gopherus agassizii*, on sex ratios and potential survival of hatchlings. They monitored nest placement by female tortoises under seminatural conditions at the Fort Irwin Study Site (FISS) in the Mojave Desert, San Bernardino County, California, and under wild conditions in habitat surrounding FISS. The author located 16 nests and found no significant difference between nest placement in the seminatural enclosure at FISS and nest placement in the wild. Gravid females deposited their eggs down the tunnel a mean distance of 0.7 m and buried their eggs at a depth of 8–10 cm from the soil surface. Utilizing this preliminary nesting data, the authors set up a manipulative experiment to further characterize the effect of nest site and date on sex ratios and survivorship of hatchlings. They constructed 14 egg nests and 9 pseudo-nests in the FISS enclosure and monitored incubation temperatures and resulting hatchling sex ratios. Forty-seven hatchlings emerged (79% survivorship) and 33 were positively sexed. Nests placed early in the reproductive season produced 6 all-female nests and nests placed late in the season produced 4 all-male nests. The mean incubation period of 90 days was divided into 3 time periods. Early nests were significantly cooler than late nests during the first and second time period (days 0–30 and days 31–60) and significantly warmer during the third time period (day 61–90). The shallowest pseudonest, located 0.2 m down the burrow, spent a significantly greater time above the critical temperature of 35.3°C than did the 0.4 m pseudo-nest or the egg nest. The autors hypothesize from these findings that females at the FISS site and surrounding area are selecting distances down the burrow tunnel to lay their eggs that increase the embryos' chances of survival. The proportion of temperature observations above the pivotal temperature (35.3°C) during days 15–45 was a better predictor of hatchling sex than the proportion measured during days 30–61. Using nest date or the proportion of temperature observations above the pivotal temperature as predictors of hatchling sex ratios may be possible for desert tortoises in the Central Mojave Desert.

VENOM-METERING IN A SPITTING COBRA

W. K. Hayes et al. [2008, J. Herpetology 42(3):453-460] note that according to the venom-metering hypothesis, snakes have the cognitive (decision-making) capacity to control, or meter, how much venom is ejected from the fangs. Critics of venom metering have argued, largely from absence of evidence, that differential venom gland contraction in snakes is trivial or nonexistent. To address this criticism, the authors videotaped the defensive bites of *Naja nigricollis nigricollis* during routine venom extractions. Mean duration of venom flow during a single pulse from a fang, when biting (0.35 sec) was significantly longer than that reported previously for spitting (0.066 sec). Moreover, mean mass of venom expended per pulse from a fang during biting (juveniles: 14.2 mg; adults: 188 mg) significantly exceeded that reported for spitting (1.85 mg). During a single bite, both juveniles and adults delivered venom via pulses that were single, multiple (each associated with a jaw contraction), unilateral (from one fang), or bilateral (from both fangs more or less simultaneously). Although juveniles and adults exhibited similar venom flow duration, adults delivered significantly more venom during biting at significantly greater rates of venom flow through the fang. Because venom gland contraction provides the only propulsive force for venom expulsion, these results confirm that *N. n. nigricollis* meters larger quantities of venom during biting than spitting via differential venom gland contraction. Because of the high degree of functional convergence between venom delivery systems of elapids (including spitting cobras) and viperids (the other large family of venomous snakes), the capacity for differential venom gland contraction may be widespread among snakes.

TORTOISE ABUNDANCE AFTER PRESCRIBED FIRE REINTRODUCTION

K. G. Ashton et al. [2008, J. Herpetology 42(3):523-529] note that historically, gopher tortoises (*Gopherus polyphemus*) occurred in fire-maintained habitats; however, many of these areas have been fire-suppressed. This study examines the spatial distribution of gopher tortoises 17–18 years after fire reintroduction to a fire-suppressed area. The study took place at Archbold Biological Station (ABS) in south-central Florida. Fires were suppressed at ABS from 1927 until 1985, at which time fire was reintroduced to this area. During 2002 and 2003, gopher tortoise burrows were surveyed in 17 burn units of sandhill and scrubby flatwoods with varied fire histories. Using density of active burrows as an indicator of gopher tortoise density, gopher tortoise burrow densities were highest in recently and frequently burned areas. Because fire influences habitat structure, the aquthors also gathered information on the amount of canopy cover and bare ground at each study site. Density of active gopher tortoise burrows increased with bare ground and decreased (but not significantly so) with canopy cover. Backward stepwise ridge regression analyses showed that number of fires was a more important predictor of active gopher tortoise burrow density than habitat structure (amount of bare ground). This study demonstrates that reintroducing fire to fire-suppressed areas is beneficial to gopher tortoises, and this response is not solely caused by changes in habitat structure.

DIET ITEMS OF PITFALL-TRAPPED LIZARDS

G. C. Costa et al. [2008, The Herpetological Journal 18(1): 45-48] note that pitfall trapping is a widely used sampling method in amphibian and reptile studies. Despite their broad use and numerous advantages, the question of whether diets of trapped animals differ from those under natural conditions remains uninvestigated. Data on eight lizard species were used to test the hypotheses that lizards captured in pitfall traps differ in diet composition and/or have higher stomach content volumes when compared to lizards collected using other methods. The basis for these hypotheses is that many common lizard prey items fall into the traps and are thus available to trapped lizards. Testing these hypotheses is critical to validate the results of diet studies that use animals taken from pitfall traps. Results showed that lizards collected from pitfall traps did not differ significantly from lizards collected outside the traps in diet composition or volume of prey consumed. However, two species (among eight) had different stomach content volumes inside the traps; one (*Anolis chrysolepis*) had a higher volume and the other (*Tropidurus oreadicus*) had a lower volume. For the species studied, the authors found that lizards collected with pitfall traps can be used in diet studies. Nevertheless, they recommend checking traps at least once a day to avoid prolonged exposure to different prey items, collecting large sample sizes, and also collecting animals outside the traps.

WATERSNAKE ESCAPE BEHAVIORS

W. E. Cooper, Jr. et al. [2008, J. Herpetology 42(3):493-500] studied escape behavior of the natricine snake *Nerodia sipedon* when approached by a human in populations in wetlands in Ohio and Michigan. Snakes responded by dropping from vegetation, but not immediately fleeing (44%), by diving beneath the water (37%), or by swimming away with the head above the surface (19%). Flight initiation distance (distance between predator and prey when escape begins) was significantly greater for individuals that dropped than those that dove or swam on the surface. This novel finding suggests that dropping may position snakes well to escape should approach continue and perhaps might serve as a pursuit-deterrent signal. Adult females were warier (had greater flight initiation distance) than adult males or juveniles. Several hypotheses to account for this difference are discussed. Flight initiation distance increased with starting distance (distance between predator and prey when the predator begins to approach). This effect was much stronger than in the few lizard species studied. The athors propose that degree of risk assessed by snakes may change during approaches because a predator that moves directly toward a snake for a longer distance is more likely to have detected the snake and be attacking than a predator that approaches over a shorter distance. Increase in perceived risk would account for greater flight initiation distance associated with greater starting distance. Flight initiation distance for basking snakes did not vary with air temperature or perch height, contrary to previous findings for body temperature and perch height. Reasons for these findings are discussed.

Advertisements

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail: GrmtRodent@aol.com.

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Herp tours: **Madagascar—Tortoise Tour** & **Chameleon Tour** seeking adventurous members for January–February 2009. The goal of the tortoise tour, to be co-led by **Peter Pritchard** of the Chelonian Research Institute and **Bill Love**, will be to see all native species in the wild and record various aspects of their lives photographically. The later chameleon tour, co-led by **Mike Monge** of FL Chams and **Bill Love**, will focus on panther chameleons, trying to find and photograph as many of the color morphs as possible in the wild. Details are at Blue Chameleon Ventures' site at: www.bluechameleon.org.

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ReptileFest 2009

April 4–5

It's creeping up on you

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, September 24, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Dr. Mark A. Mitchell**, an associate professor at the University of Illinois College of Veterinary Medicine, will speak about artificial insemination in snakes.

Speaking at the October 29 meeting will be **Will Bird** and **Phil Peak**, two members of the Kentucky Herpetological Society who were co-authors last year of *A Snake Hunting Guide: Methods, Tools and Techniques for Finding Snakes*.

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago's newest museum — the **Peggy Notebaert Nature Museum**. This beautiful new building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the next board meeting, to be held at 7:30 P.M., October 17, in the adult meeting room on the second floor of the Schaumburg Township District Library, 130 S. Roselle Road, Schaumburg.

The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info visit the CTC website: http://www.geocities.com/~chicagoturtle.

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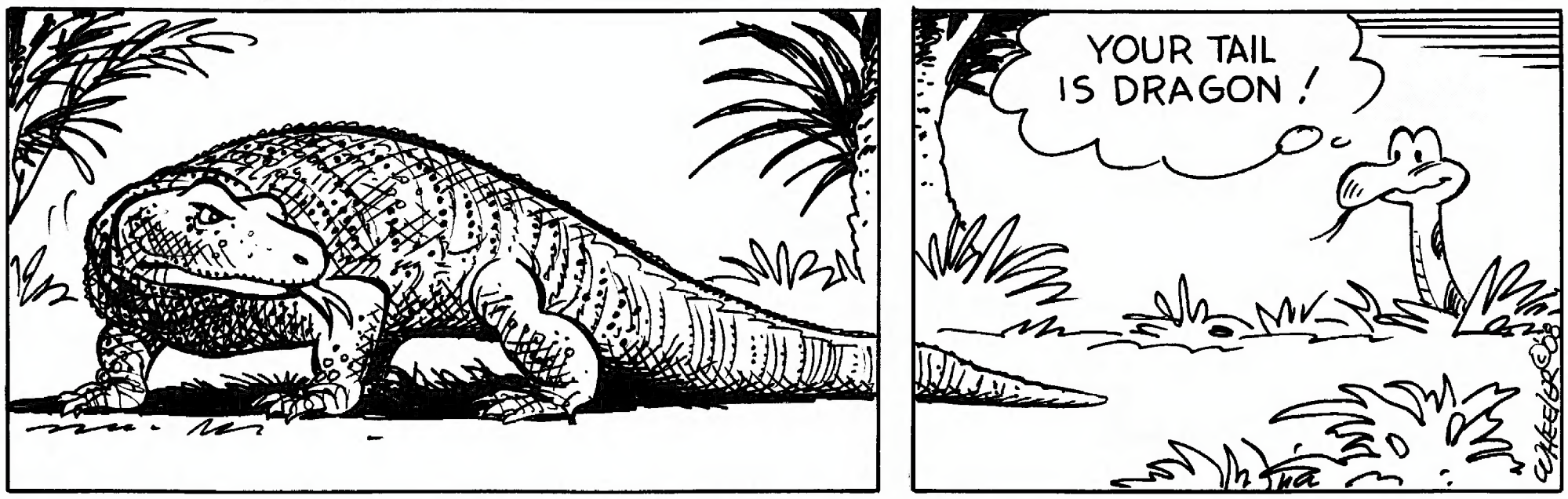

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